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## **A GUIDE TO POLLUTION PREVENTION IN THE ACQUISITION OF COMMODITIES**

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## **Preface**

The purpose of this guide is to assist System Safety Engineers, Project Leaders and Contractors in reducing environmental pollution and hazardous waste generated as a result of the acquisition, manufacture, use and disposal of C4IEW/S commodities. The guide and its appended tables are to assist in identifying and reporting hazardous materials. It allows users to focus efforts on the reduction of these materials.

1. **Introduction:**

a. It is DoD policy to prevent environmental damage from acquisition programs, and to protect the safety and health of our soldiers and workforce.

b. Prudent investment in pollution prevention (P2) can significantly reduce life-cycle environmental costs and liability while improving environmental quality. Sound program management of environmental risks is a key element contributing to a successful acquisition program. Not addressing environmental issues early-on can result in increased program costs, a delay in meeting scheduled milestones, and ultimately the acceptance of more environmental risks. Therefore, the goal should be to eliminate the use and/or generation of hazardous materials (HAZMATs) during the life-cycle of the system. Where this is not practical, efforts should be made up-front to minimize the use of HAZMATs in order to reduce adverse environmental impacts, and costs associated with the handling and disposal of HAZMATs.

2. **Pollution Prevention During Acquisition:** We must ensure that HAZMATs are addressed early in the development of the acquisition package. It is also important that requirements address HAZMATs throughout the item's entire life-cycle from production through disposal. The following provides general guidance to assist in the preparation of Acquisition Requirements Packages and participation in source selection evaluation boards.

a. Acquisition Requirements Package (ARP): Input to the ARP should address P2 in the System Specification, Statement of Work (SOW) (see Appendix B), and the Source Selection Evaluation Criteria to help ensure that HAZMATs are properly identified, reported, eliminated, and/or reduced during the acquisition. The ARP input should always be tailored to meet your program requirements.

(1) Identification and Reporting of HAZMATs: To achieve the goals of HAZMAT reduction, hazardous materials must be identified early in the acquisition process. Appendix C Tables C1-C3 can be used to assist in the HAZMAT identification process. The tables list the most common HAZMATs that are targeted by the U.S. Environmental Protection Agency and should be considered for elimination or reduction. Initial reporting of P2 and HAZMAT reduction efforts should be done by contractors in their contract proposal.

(2) Elimination of HAZMATs: Where practical, we should strive to eliminate the use and generation of HAZMATs during manufacturing, use and maintenance of the item. Technical Bulletin 43-0135, Environmentally Safe Substances for Use with Communications-Electronics Equipment (Ref A8), will assist in providing a list of many suitable environmentally safe substitutes. Additional information is available at the EPA's website "<http://www.epa.gov/>", and the Army Acquisition Pollution Prevention Support Office website at "<http://www.aappso.com/>".

(3) Reduction of HAZMATs: When elimination or substitution of HAZMATs is not practical, efforts should be made to minimize HAZMAT usage and maximize recycling.

b. Request for Proposal (RFP) and Source Selection: In the RFP, the government should require offerors to state how their proposal meets the intent of P2. Government representatives can use the response to the RFP as a tool in the evaluation and selection process. When reviewing the contractor proposal the government evaluator should evaluate how the contractor plans to meet P2 requirements. For example, a contractor should either be certified to the International Standards Organization 14001 standard (ISO-14001) which establishes P2 programs for Life-Cycle Management of end items, or they should have an established program that demonstrates the contractor's processes for meeting P2 requirements.

c. Contract Administration:

(1) During the contract execution, HAZMAT data needs to be provided by the contractor. Information on how, what, when, and where HAZMATs are used should be provided. The data are used to develop procedures that will help to ensure the safe handling, demilitarization, and disposal of the end item(s). The contractor-provided HAZMAT data are reviewed by the government for completeness and accuracy, and the data are retained as a part of the equipment data file. However, if the item does not contain a HAZMAT(s), the manufacturer needs to certify and provide such a statement in the Safety Assessment Report (SAR), and shall describe the process used to make the determination.

(2) Material Safety Data Sheet (MSDS): The contractor shall prepare and include MSDSs for hazardous materials with the system's SAR, if the item contains materials listed at Table D1. For items in the Federal Stock Groups (FSG) at Table D2, an MSDS should be prepared ONLY if the item contains a HAZMAT. The aim of the MSDS is to communicate the associated safety, health, and environmental hazard(s), and the appropriate controls and measures necessary to mitigate these hazards. The MSDS is also used for the preparation of the Defense Reutilization and Marketing Service (DRMS) Form 1930 Hazardous Waste Profile Sheet (HWPS), see Form D2. This optional form may be required by gaining activity for disposition and disposal.

3. **Summary**: The up-front investment in P2 reduces life-cycle environmental costs and liability, while minimizing any adverse effects on the environmental quality. The earlier P2 is started during the acquisition cycle, the more effective it will be. Our goal is to protect the environment, and ensure the safety and health of our soldiers and the civilian workforce.

4. **Point of Contact**: Questions concerning P2 may be directed to the CECOM Directorate for Safety (DS), AMSEL-SF-SEP, at DSN 992-9723, COM 732-532-9723, or at our website "<http://www.monmouth.army.mil/cecom/safety/>".

## **Appendix A1**

### **References**

#### **Directives:**

- A1. DoD Directive 5000.1, "Defense Acquisition," 15 March 1996.
- A2. DoD Regulation 5000.2, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems Acquisition Programs," 23 March 1998.
- A3. Executive Order (E.O.) 12196, 26 February 90, Subject: Occupational Safety and Health Programs for Federal Employees.
- A4. E.O. 12843, 23 April 1993, Subject: Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances.
- A5. E.O. 12856, 3 August 1993, Subject: Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements.
- A6. E.O. 12873, 20 October 1993, Subject: Federal Acquisition, Recycling, and Waste Prevention.
- A7. Title 29, Code of Federal Regulations, Part 1910.1200, Hazard Communication, latest edition.

#### **Sources of Information:**

- A8. Technical Bulletin (TB) 43-0135, HQDA, 1 June 1994; Subject: Environmentally Safe Substances for Use with Communications-Electronics Equipment.
- A9. Federal Standard (FED-STD), GSA, Wash., DC, 3 Apr 96, Subject: FED-STD 313D Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.
- A10. American National Standards Institute (ANSI), New York, NY, 3 Jun 93, Subject: ANSI Z400.1-1993 American National Standard for Hazardous Industrial Chemicals, Material Safety Data Sheets, Preparation.
- A11. Army Regulation (AR), HQDA, 2 Aug 95, Subject: AR 700-141, Hazardous Materials Information System (HMIS) (RCS DD-FM & P (A, Q & AR) 1486).



A12. Data, US Army Acquisition Pollution Prevention Support Office, Washington, DC, Source: <http://www.aappso.com/>, 21 November 1997, Subject: Class I and II Ozone-Depleting Substances.

A13. Report, US Army Corps of Engineers, Construction Engineering Research Laboratory, Champaign, IL, Source: <http://denix.cecer.army.mil/>, 21 August 1998, Subject: DoD Reduces Toxic Chemical Release Over 50% Within Three Years.

A14. McMinn, B.W., et al., USEPA, Air and Energy Engineering Research Laboratory, Research Triangle Park, NC, EPA/600/SR-95/011, June 1996, Subject: Solvent-Based to Waterbased Adhesive-Coated Substrate Retrofit.

A15. SAX's Dangerous Properties of Industrial Materials (DPIM), Van Nostrand Reinhold, New York, 1992.

A16. Handbook, Air Force Materiel Command, Wright-Patterson AFB, OH, January 1999, Subject: Pollution Prevention in Weapon System Life-Cycle Management.

#### **Voluntary Standards:**

A17. Standard, International Organization for Standardization (ISO), Geneva, Switzerland, Subject: ISO 14001 Environmental Management Systems Standard. (Note: This standard institutes a systematic framework for incorporating environmental protection into overall management strategy.)

A18. National Aerospace Standard 411, U.S. Dept. of Defense, Washington, D.C., Subject: Hazardous Materials Management Program. (Note: This standard provides a flexible, systematic process for managing hazardous materials in the acquisition and life cycle of a system. It will help reduce hazardous materials usage and the generation of pollutants, not only during the manufacture, but also during the operations and maintenance of the system over its approximately 30 year life.)

## Appendix A2

### Abbreviations and Acronyms

ARP	Acquisition Requirements Package
C4IEW/S	Command, Control, Communications, Computers, Intelligence, and Electronic Warfare/Sensors
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DoD	Department of Defense
ECU	Environmental Control Unit
EPCRA	Emergency Planning and Community Right to Know Act
EPA	U.S. Environmental Protection Agency
E.O.	Executive Order
HAZCOM	hazard communications
HAZMAT	hazardous material
HAZMIN	hazardous material minimization
HWPS	Hazardous Waste Profile Sheet
MSDS	Material Safety Data Sheet
OHSA	Occupational Safety and Health Act
ODC <sup>1</sup>	ozone-depleting chemicals
ODS <sup>1</sup>	ozone-depleting substances
P2	Pollution Prevention
PPA	Pollution Prevention Act
RFP	Request for Proposal
SAR	Safety Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SOW	statement of work
TRI	Toxic Release Inventory

Note:

1. ODC/ODS: The terms may be used interchangeably. The Army uses ODC, and typically most other Agencies use the term ODS.

## **Appendix B**

### **Pollution Prevention (P2) Acquisition Requirements Package (ARP) Inputs**

**P2 System Specification Requirement:** When possible the contractor must (1) eliminate or exclude the use of hazardous materials (HAZMAT) and ozone-depleting substances (ODS)/ozone-depleting chemicals (ODC); (2) substitute less hazardous materials for existing HAZMATs and ODS/ODC; (3) minimize the use of, and/or recycle HAZMATs and ODS/ODC.

**P2 Statement of Work (SOW):** The contractor shall address the following in the Safety Assessment Report (SAR): (1) identify actions taken to eliminate or reduce HAZMATs and ODS/ODC, and (2) provide a Material Safety Data Sheet (MSDS) (AMSEL Form 1164-E (Rev. Dec. 97)), or equivalent data, for the identification of HAZMATs contained in, used by, or generated by the system. The MSDS will clearly identify the item, and provide data addressing physical/chemical agent(s) which can affect the safety or health of personnel, generate a hazardous waste, or are dangerous during transport. If the system contains no HAZMATs, the contractor SHALL certify in the SAR that the end item does not contain any HAZMAT nor ODS/ODC.

**Section L:** The RFP shall address how HAZMATs will be identified, and their use limited.

## Appendix C

### Identification of Hazardous Materials (HAZMATs)

The tables in this Appendix list potentially hazardous chemicals. These tables may be used to assist in the identification of HAZMATs and minimization of their use during manufacturing, system operations and maintenance. However, these lists should **NOT** be considered all-inclusive, and the search for HAZMATs need not be limited to these tables. Additional references (Refs A8-A15) are provided to assist in HAZMAT identification.

**Table C1:** This is an expanded listing of the U.S. Environmental Protection Agency's Top Seventeen (17) Targeted Chemicals by chemical category. The goal is to significantly reduce the emissions through process changes, substitutions, etc.

**Table C2:** This is a listing of Class I and Class II Ozone-Depleting Chemicals (ODC). The production of Class I ODCs, identified as the worst ozone depleters, was prohibited as of January 1, 1996. The production of Class II ODCs (e.g., refrigerants (hydrochlorofluorocarbons (HCFCs) R-22 and R-123) will be prohibited from use in new Environmental Control Units (ECU) in January 1, 2010. All production of Class II ODCs will be prohibited after January 1, 2020. The U.S. codified these phase-out dates in the Clean Air Act Amendments of 1990.

**Table C3:** This is a listing of the Army's top chemical releases and transfers under Superfund Amendments and Reauthorization Act (SARA), Title III. Once again, the goal is to significantly reduce the emissions through process changes, substitutions, etc.

Table C1.		U.S. EPA's 17 Top Targeted Chemicals			January 1999
Source: McMin, B.W., et al.,		June 1996, Subject: Solvent-Based to Waterbased Adhesive-Coated Substrate Retrofit.			
Annotated: SAX's Dangerous		Properties of Industrial Materials (DPIM), Van Nostrand Reinhold, New York, 1992.			
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name		
Benzene	71-43-2	BBL250	Benzene		
Cadmium and compounds	7440-43-9	CAD000	Cadmium		
Carbon tetrachloride	56-23-5	CBY000	Carbon tetrachloride		
Chloroform	67-66-3	CHJ500	Chloroform		
Chromium and compounds					
		CMJ500			
	1836-22-2	CMG750	Chromacid fast red 3B		
	15005-90-0	CMG800	Chromalum hexahydrate		
	7788-99-0	CMG850	Chrome alum (dodecahydrate)		
	1066-30-4	CMH000	Chromic acetate		
	7738-94-5	CMH250	Chromic acid		
	***	CMH500	Chromic acid (mixture)		
	1308-14-1	CMH750	Chromic acid (sol.)		
	24613-89-6	CMJ250	Chromic chromate		
	7440-47-3	CMJ750	Chromium		
	628-52-4	CMJ000	Chromium acetate hydrate		
	29689-14-3	CMJ100	Chromium carbonate		
	10025-73-7	CMJ250	Chromium chloride		
	13548-38-4	CMJ600	Chromium(III) nitrate		
	24094-93-7	CMJ850	Chromium nitride		
	1308-38-9	CMJ900	Chromium(III) oxide(2:3)		
Note	***=CAS# unknown				



Table C1. (cont'd)	U.S. EPA's 17 Top Targeted Chemicals		
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name
Cyanide and compounds (cont'd)	57-12-5	COI500	
	1001-58-7	COM750	.beta.-Cyanoethylmercaptan
	1071-22-3	CON000	2-Cyanoethyltrichlorosilane
	919-31-3	CON250	(2-Cyanoethyl)triethoxysilane
	13067-93-1	CON300	Cyanofenphos
	353-18-4	CON500	2-cyano-2'-fluorodiethyl ether
	4474-17-3	CON825	Cyanoformyl chloride
	460-19-5	COO000	Cyanogen
	764-05-6	COO250	Cyanogen azide
	506-68-3	COO500	Cyanogen bromide
	506-77-4	COO750	Cyanogen chloride
	1495-50-7	COO825	Cyanogen fluoride
	506-78-5	COP000	Cyanogen iodide
	31065-88-0	COP500	Cyanohydroxymethyl
	1001-55-4	COP750	Cyanomethyl acetate
	***	COP759	5-Cyano-5-methyltetrazole
	1884-64-6	COP775	Cyanonitrene
	68597-10-4	COQ325	2-Cyano-4-nitrobenzenediazonium hydrogen sulfate
	56092-91-2	COQ375	3-(3-Cyano-1,2,4-oxadiazol-5-yl)-4-cyanofurazan-2-(5-) oxide
	2636-26-2	COQ399	Cyanophos
	627-26-9	COQ750	1-Cyanopropene
	1190-16-5	COR325	3-Cyanopropylidichloromethylsilane
	40561-27-1	COR750	2-Cyano-2-propyl nitrate
	60560-33-0	COS500	2-Cyano-3-(4-pyridyl)-1-(1,2,3, trimethylpropyl)guanidine
	41427-34-3	COS750	2-Cyano-4-stilbenamine
	70247-32-4	COS825	2-(5-Cyanotetrazole)pentamminecobalt(III) perchlorate
	63833-98-7	COS899	Cyanotriepazine maleate
	151-50-8	PLC500/PLC750	Potassium cyanide
	143-33-9	SGA500/SGB000	Sodium cyanide
	23239-41-0	SGB500	Sodium cephaetrile
Methyl isobutyl ketone	108-10-1	HFG500	Methyl isobutyl ketone
Note	***=CAS# unknown		

Table C1. (cont'd)		U.S. EPA's 17 Top Targeted Chemicals		
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name	
Lead and compounds		LCT000		
	7439-92-1	LCF000	Lead	
	7784-40-9	LCK000	Lead acid arsenate	
	10031-13-7	LCL000	Lead(II) arsenite	
	13424-46-9	LCM000	Lead(II) azide	
	***	LCN000	Lead(IV) azide	
	34018-28-5	LCO000	Lead bromate	
	598-63-0	LCP000	Lead carbonate	
	7758-95-4	LCQ000	Lead chloride	
	13453-57-1	LCQ300	Lead(II) chlorite	
	7758-97-6	LCR000	Lead chromate	
	18454-12-1	LCS000	Lead chromate, basic	
	592-05-2	LCU000	Lead(II) cyanide	
	1309-60-0	LCX000	Lead dioxide	
	69029-52-3	LDC000	Lead dross (DOT)	
	13814-96-5	LDE000	Lead fluoborate	
	7783-46-2	LDF000	Lead(II) fluoride	
	25808-74-6	LDG000	Lead(II) fluorosilicate	
	19423-89-3	LDI000	Lead hyponitrite	
	***	LDJ000	Lead hypophosphite	
	***	LDK000	Lead imide	
	12709-98-7	LDM000	Lead-molybdenum chromate	
	1317-36-8	LDN000	Lead monoxide	
	10099-74-8	LDO000	Lead(II) nitrate(1:2)	
	1314-41-6	LDS000	Lead oxide red	
	13637-76-8	LDS499	Lead(II) perchlorate	
	63916-96-1	LDT000	Lead(II) perchlorate, hexahydrate(1:2:6)	
	7446-27-7	LDU000	Lead(II) phosphate(3:2)	
	63916-97-2	LDV000	Lead potassium thiocyanate	
	10099-76-0	LDW000	Lead silicate	
	7446-14-2	LDY000	Lead(II) sulfate(1:1)	
	1314-87-0	LDZ000	Lead sulfide	
	13463-30-4	LEC000	Lead tetrachloride	
	592-87-0	LEC500	Lead(II) thiocyanate	
	12060-00-3	LED000	Lead titanate	
Note	***=CAS# unknown			



Table C1. (cont'd)		U.S. EPA's 17 Top Targeted Chemicals	
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name
Mercury and compounds		MCZ000; MDA000	Inorganic compounds; Organic compounds
	8018-15-3	MCS000	Mercumatinil sodium
	64049-28-1	MCS250	2,2'-Mercuribis(6-acetoxymercuri-4-nitro)aniline
	64047-26-3	MCS500	Mercuribis(diethyl(2,2-dimethyl-4-dithiocarboxyamino)butylammonium dichloride
	1600-27-7	MCS750	Mercuric acetate
	6937-66-2	MCT000	Mercuric-8,8-dicaffeine
	63766-15-4	MCT250	Mercuric dinaphthylmethane disulphonate
	21908-53-2	MCT500	Mercric oxide
	***	MCT750	Mercuric peroxybenzoate
	5970-32-1	MCU000	Mercuric salicylate
	592-85-8	MCU250	Mercuric sulfocyanate
	535-55-7	MCU500	Hermophenyl
	55-68-5	MCU750	Mercuriphenyl nitrate
	12002-19-6	MCV250	Mercuriol
	52486-78-9	MCV500	Mercurophen
	8012-34-8	MCV750	Mercurophylline
	7546-30-7	MCW000	Mercurous chloride
	7439-97-6	MCW250	Mercury
	37297-87-3	MCW350	Mercury(II) acetylde
	10124-48-8	MCW500	Mercury amide chloride
	38232-63-2	MCX000	Mercury(I) azide
	14215-33-9	MCX250	Mercury(II) azide
	583-15-3	MCX500	Mercury(II) benzoate
	64771-59-1	MCX600	Mercury bis(chloroacetylde)
	13465-33-3	MCX700	Mercury(I) bromate
	10031-18-2	MCX750	Mercury(I) bromide(1:1)
	7789-47-1	MCY000	Mercury(II) bromide(1:2)
	64011-37-6	MCY250	Mercury(II) bromide complex w/ tris(2-ethylhexyl) phosphite
	7487-94-7	MCY475	Mercury(II) chloride
	63981-49-7	MCY500	Mercury(II) chloride complex w/ tris(2-ethylhexyl) phosphite
	***	MCY750	Mercury(I) chlorite
	7616-83-3	MCY755	Mercury(II) chlorite
	72044-13-4	MDA100	Mercury(I) cyanamide
	3021-39-4	MDA150	Mercury(II) cyanate
Note	***=CAS# unknown		

Table C1. (cont'd)		U.S. EPA's 17 Top Targeted Chemicals		
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name	
Mercury and compounds (cont'd)		MCZ000; MDA000	Inorganic compounds; Organic compounds	
	592-04-1	MDA250	Mercury(II) cyanide	
	1335-31-5	MDA500	Mercury cyanide oxide	
	30366-55-3	MDA750	Mercury-O-O-di-n-butyl phosphorodithioate	
	***	MDA800	Mercury (II) aci-dinitromethanide	
	12558-92-8	MDB250	Mercury(II) EDTA complex	
	63905-89-5	MDB500	Mercury (II) fluoroacetate	
	63937-14-4	MDC500	Mercury(I) gluconate	
	7783-30-4	MDC750	Mercury(I) iodide	
	7774-29-0	MDD000/MDD250	Mercury(II) iodide	
	814-82-4	MDD500	Mercury(2+) lactate	
	115-09-3	MDD750	Mercury methylchloride	
	***	MDE000	Mercury methyl nitrolate	
	631-60-7	MDE250	Mercury monoacetate	
	68448-47-5	MDE500	Mercury-2-naphthalenediazonium trichloride	
	10415-75-5	MDE750	Mercury(I) nitrate(1:1)	
	10045-94-0	MDF000	Mercury(II) nitrate(1:2)	
	1191-80-6	MDF250	Mercury oleate	
	7784-37-4	MDF350	Mercury(II) orthoarsenate	
	15829-53-5	MDF750	Mercury(I) oxide	
	1312-03-4	MDG000	Mercury oxide sulfate	
	7616-83-3	MDG200	Mercury(II) perchlorate	
	7783-36-0	MDG250	Mercury(I) sulfate	
	7783-35-9	MDG500	Mercury(II) sulfate(1:1)	
	1344-48-5	MDG750	Mercury(II) sulfide	
	70224-81-6	MDH000	Mercury tetraacetate	
	***	MDH250	Mercury(I) thionitrosylate	
	8003-05-2	MDH500	Merphenyl nitrate	
	63869-00-1	MDH750	Mersalyl theophylline	
Methyl chlorform	71-55-6	MIH275	1,1,1-Trichloroethane	
Methylene chloride	75-09-2	MJP450	Methylene dichloride	
Methyl ethyl ketone	78-93-3	MIKA400	Methyl ethyl ketone	
Note	***=CAS# unknown			

Table C1. (cont'd)	U.S. EPA's 17 Top Targeted Chemicals		
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name
Nickel and compounds		NDB000	Nickel
	7440-02-0	NCW500	Nickel
	373-02-4	NCX000	Nickel(II) acetate (1:2)
	6018-89-9	NCX500	Nickel acetate tetrahydrate
	37227-61-5	NCY000	Nickel alloy, Ni, Be
	15699-18-0	NYC050	Nickel ammonium sulfate
	12035-52-8	NCY100	Nickel antimonide
	12255-10-6	NCY125	Nickel arsenide sulfide
	3333-67-3	NCY500	Nickel(II) carbonate (1:1)
	13463-39-3	NCZ000	Nickel carbonyl
	7791-20-0	NDA000	Nickel(II) chloride hexahydrate(1:2:6)
	1271-28-9	NDA500	Nickel, compound w/cyclopentadienyl
	557-19-7	NDB500	Nickel cyanide
	12035-51-7	NDB875	Nickel disulfide
	14708-14-6	NDC000	Nickel(II) fluoroborate
	10028-18-9	NDC500	Nickel(II) fluoride(1:2)
	26043-11-8	NDD000	Nickel (II) Fluosilicate (1:1)
	56668-59-8	NDD500	Nickel-gallium alloy
	12125-56-3	NDE000	Nickel (II) hydroxide
	12125-56-3	NDE010	Nickel (III) hydroxide
	59978-65-3	NDE500	Nickel iron sulfide
	74203-45-5	NDF000	Nickel(II) isodecyl orthophosphate(3:2)
	1314-05-2	NDF400	Nickel monoselenide
	1313-99-1	NDF500	Nickel monoxide
	17861-62-0	NDG550	Nickel nitrate
	1314-06-3	NDH500	Nickel peroxide
	14220-17-8	NDI000	Nickel potassium cyanide
	13520-61-1	NDJ000	Nickel(2+) salt perchloric acid hexahydrate
	12255-80-0	NDJ399	Nickel subarsenide
	12256-33-6	NDJ400	Nickel subarsenide
	12137-13-2	NDJ475	Nickel subselenide
	12035-72-2	NDJ500	Nickel subsulfide
	13770-89-3	NDK000	Nickel(II) sulfamate
	7786-81-4	NDK500	Nickel sulfate
	10101-97-0	NDL000	Nickel(II) sulfate hexahydrate(1:1:6)
	11113-75-0	NDL100	Nickel sulfide
	12142-88-0	NDL425	Nickel telluride

Table C1. (cont'd)	U.S. EPA's 17 Top Targeted Chemicals		
Chemical category	ACS Chemical Abstract Service Number (CAS #)	SAX's DPIM Entry Number (DPIM#)	Chemical Name
Nickel and compounds (cont'd)		NDB000	
	12035-39-1	NDL500	Nickel titanium oxide
Perchloro-ethylene	127-18-4	PCF275	Tetrachloroethylene
Toluene	108-88-3	TGK750	Toluene
Trichloro-ethylene	79-01-6	TIO750	Trichloroethylene
Xylene	1330-20-7	XGS000	Xylene
	108-38-3	XHA000	m-Xylene
	95-47-6	XHJ00	o-Xylene
	106-42-3	XHS000	p-Xylene

**Table C2**

**Class I and II Ozone-Depleting Chemicals (ODC)**

Source: "www.aappso.com/odc/odslst.html", 18 February 2000

**CLASS I OZONE-DEPLETING CHEMICALS**

**Fire Suppressants**

Bromochlorodifluoromethane	Halon 1211
Bromotrifluoromethane	Halon 1301
Dibromotetrafluoroethane	Halon 2402
Bromodifluoromethane	HBFC-22B1 FM-100

**Refrigerants**

Trichlorofluoromethane	CFC-11 (R-11) Freon 11
Dichlorodifluoromethane	CFC-12(R-12) Freon 12
--Azeotropic mix of R-12 and 1,1 Difluoroethane (HFC-152a)	R-500
-- Azeotropic mix of R-12 and Chlorodifluoromethane (HCFC-22)	R-501
Chlorotrifluoromethane	CFC-13(R-13) Freon 13
-- Azeotropic mix of R-13 and Trifluoromethane (HFC-23)	R-503
Pentachlorofluoroethane	CFC-111 (R-111)
Tetrachlorodifluoroethane	CFC-112 (R-12)
Dichlorotetrafluoroethane	CFC-114 (R-114)
Chloropentafluoroethane	CFC-115 (R-115)
-- Azeotropic mix of R-115 and Chlorodifluoromethane (HCFC-22)	R-502
Heptachlorofluoropropane	CFC-211
Hexachlorodifluoropropane	CFC-212
Pentachlorotrifluoropropane	CFC-213
Tetrachlorotetrafluoropropane	CFC-214
Trichloropentafluoropropane	CFC-215
Dichlorohexafluoropropane	CFC-216
Chloroheptafluoropropane	CFC-217

**Solvents**

Tetrachloromethane (CCl <sub>4</sub> )	Carbon Tetrachloride
1,1,1 Trichloroethane (TCA)	Methyl Chloroform
Trichlorotrifluoroethane (CFC-113)	Freon 113

**Others**

Bromomethane MBX Methyl Bromide
---------------------------------

**Table C2 (Cont'd)**

**CLASS II OZONE-DEPLETING CHEMICALS**

**Hydrochlorofluorocarbons**

Dichlorofluoromethane	HCFC-21
Chlorodifluoromethane	HCFC-22
Chlorofluoromethane	HCFC-31
Tetrachlorofluoroethane	HCFC-121
Trichlorodifluoroethane	HCFC-122
Dichlorotrifluoroethane	HCFC-123
Chlorotetrafluoroethane	HCFC-124
Trichlorofluoroethane	HCFC-131
Dichlorodifluoroethane	HCFC-132b
Chlorotrifluoroethane	HCFC-133a
Dichlorofluoroethane	HCFC-141b
Chlorodifluoroethane	HCFC-142b
Hexachlorofluoropropane	HCFC-221
Pentachlorodifluoropropane	HCFC-222
Tetrachlorotrifluoropropane	HCFC-223
Trichlorotetrafluoropropane	HCFC-224
Dichloropentafluoropropane	HCFC-225
Chlorohexafluoropropane	HCFC-226
Pentachlorofluoropropane	HCFC-231
Tetrachlorodifluoropropane	HCFC-232
Trichlorotrifluoropropane	HCFC-233
Dichlorotetrafluoropropane	HCFC-234
Chloropentafluoropropane	HCFC-235
Tetrachlorofluoropropane	HCFC-241
Trichlorodifluoropropane	HCFC-242
Dichlorotrifluoropropane	HCFC-243
Chlorotetrafluoropropane	HCFC-244
Trichlorofluoropropane	HCFC-251
Dichlorodifluoropropane	HCFC-252
Chlorotrifluoropropane	HCFC-253
Dichlorofluoropropane	HCFC-261
Chlorodifluoropropane	HCFC-262
Chlorofluoropropane	HCFC-271

### Table C3

**Army's Toxic Release Inventory Data  
Top 10 Chemical Releases and Transfers**  
Source: "denix.cecer.army.mil", 21 August 1998

#### **Chemical**

Zinc Compounds  
Hexachloroethane  
Methyl Ethyl Ketone  
1,1,1-Trichloroethane  
Trichloroethylene  
Dichloromethane  
Ethylene Glycol  
Phosphoric Acid  
Chlorine  
Ethylbenzene

## **Appendix D**

### **Reporting of Hazardous Materials (HAZMATs)**

1. The Federal Hazard Communication (HAZCOM) Regulation (Ref A7) requires the manufacturer to prepare, and the employer to provide employees with information regarding HAZMATs to which they may be exposed. The CECOM Material Safety Data Sheet (MSDS) (AMSEL Form 1164-E (Rev. Dec. 97), Appendix D, Form D1), or an equivalent data reporting form, should be used to report HAZMATs to the gaining activity IAW HAZCOM. The preparer (i.e., manufacturer of the item) may modify the reporting form as appropriate.

2. An MSDS is required, if the item contains materials listed in Table D1. For items in the Federal Stock Groups (FSG) at Table D2, an MSDS should be prepared ONLY if it contains a HAZMAT. The MSDS should be filled out with care, and the MSDS should adequately identify the item and the HAZMAT.

3. In addition the Defense Reutilization and Marketing Office (DRMO) may require a Defense Reutilization and Marketing Service (DRMS) Form 1930 Hazardous Waste Profile Sheet (HWPS) Form D2, for characterization as a condition of accepting hazardous solid waste for disposal. This form is optional, and may be required by gaining activity. It may be obtained at the DRMS website at "<http://www.drms.dla.mil/newenv/index.html/>", and then click on "HWPS FormFlow(frp)" under Environmental Service Quick Links.



## **Table D1**

### **MSDS required for all items in the following Federal Stock Classes (FSC)**

Source: FED-STD-313D

#### **FSC TITLE**

6810 Chemicals  
6820 Dyes  
6830 Gases: Compressed and liquefied  
6840 Pest Control Agents and Disinfectants  
6850 Miscellaneous Chemical Specialties  
7930 Cleaning and Polishing Compounds and Preparations  
8010 Paints, Dopes, Varnishes, and Related Products  
8030 Preservative and Sealing Compounds  
8040 Adhesives  
9110 Fuels, Solid  
9130 Liquid Propellants and Fuels, Petroleum B830  
9135 Liquid Propellant Fuels and Oxidizers, Chemical Base  
9140 Fuel Oils  
9150 Oils and Greases: Cutting, Lubricating, and Hydraulic  
9160 Miscellaneous Waxes, Oils and Fats

**Table D2**

**Partial Listing of hazardous items in other  
Federal Stock Groups (FSG's) from FED-STD-313D**  
Source: FED-STD-313D

<b>FSG</b>	<b>TITLE</b>	<b>EXAMPLES OF HAZARDOUS ITEMS</b>
12	Fire Control Equipment	Initiators, propellants, cartridges power
13	Ammunition & Explosives	Explosive devices, fire starter, flares
14	Guided Missile Components & Accessories	Cartridges, power devices, rocket, PCB's
15	Aircraft & Airframe Structural Components	Radioactive materials
16	Aircraft Components & Accessories	Items containing asbestos
25	Vehicular Equipment Components	Items containing asbestos
26	Tires & Tubes	Items containing flammable or toxic compounds
42	Fire Fighting, Rescue, & Safety Equipment	Extinguishing agents, repair and refill kits, containing hazardous chemicals, compressed gases, initiating charges, etc.
53	Hardware & Abrasives	Materials containing asbestos, lead, hazardous chemicals, etc.
58	Communications & Radiation Equipment	Equipment coolers with Ozone Depleting Substances, solvent for cleaning, etc.
59	Electrical & Electronic Components	Items with PCB's, radioactive materials, flammable solvents, asbestos, or magnetic items.
61	Electric Wire & Power Distribution Equipment	Batteries containing hazardous materials

**Table D2 (Cont'd)**

<b>FSG</b>	<b>TITLE</b>	<b>EXAMPLES OF HAZARDOUS ITEMS</b>
62	Lighting Fixtures & Lamps	Items containing mercury, radioactive materials, etc.
63	Alarm, Signal, & Security Detection Systems	Items containing batteries, radioactive materials, etc.
66	Instruments & Laboratory Equipment	Items containing batteries, flammable compounds, compressed gases, mercury, radioactive materials, etc.
67	Photographic Equipment & Supplies	Solvents, thinners, cements, etc.
75	Office Supplies & Devices	Cleaning fluids, flammable inks, solvents, thinners, varnishes, and chemicals which off-gas

**Form D1**

**CECOM Material Safety Data Sheet**

**1. PRODUCT AND MANUFACTURER:**

Item Identification:

National Stock Number:

Type Number:

Common Name:

Contract Number:

Manufacturer's Identification:

Hazardous Characteristic Code:

(for Agency use ONLY)

Weight of Item (pounds):

Item Dimensions (inches):

Manufacturer's Federal Supply Code (CAGE):

Name and Address and ZIP code:

Emergency telephone number:

Information telephone number:

Effective Date:

Date Submitted:

Name, Title and Signature of Preparer:

**2. COMPOSITION OF ITEM:**

Hazardous Components		Exposure Limits (ppm or mg/m <sup>3</sup> )			%
(Chemical Name or Symbol)	CAS#	OSHA PEL	ACGIH TLV	Other	Weight

**3. PHYSICAL AND CHEMICAL PROPERTIES:**

Boiling Point:

Vapor Pressure (mmHg):

Evaporation Rate (butyl acetate=1):

Solubility in Water:

Odor and Appearance:

pH:

Melting Point:

Vapor Density (Air=1):

Specific Gravity (water=1):

#### 4. STABILITY AND REACTIVITY:

Chemical Stability: Stable:                      Unstable:  
Conditions to avoid:

Incompatibility:

Hazardous Decomposition Products:

Hazardous Polymerization: May Occur:                      Will not Occur:  
Conditions to avoid:

#### 5. HEALTH HAZARD IDENTIFICATION:

Emergency Overview (including Signs and Symptoms, Route(s) of Entry, etc.):

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.):

Chronic Health Effects (e.g., Carcinogenicity, Teratology, Reproduction, Mutagenicity, etc.):

Medical Conditions Generally Aggravated by Exposure:

#### 6. FIRST AID MEASURES:

7. FIRE FIGHTING and EXPLOSION HAZARD DATA:

Flammable Properties:

Flashpoint: Method:

Autoignition Temperature:

Flammable Limits:

Lower flammable limit: Upper flammable limit:

Hazardous Combustion Products:

Extinguishing Media:

Fire Fighting Instructions:

8. ACCIDENTAL RELEASE MEASURES:

Small Spill:

Large Spill:

9. HANDLING AND STORAGE:

Handling:

Storage:

10. EXPOSURE CONTROL/PERSONAL PROTECTION EQUIPMENT:

Engineering Controls:

General Exhaust: Local Exhaust:

Special:

Personal Protective Equipment (PPE) (e.g., Respiratory Protection, Skin Protection, Eye Protection, etc):

Work/Hygienic Practices:

11. DISPOSAL CONSIDERATIONS/ECOLOGICAL INFORMATION:

Toxic Properties:

Decomposition Products:

Waste Disposal Method:

12. TRANSPORTATION INFORMATION:

Applicable Regulation:

Proper Shipping Name:

DOT Hazard Class:

DOT Identification Number:

DOT Packaging Group:

DOT Labeling:

Procedures:

Special Precautions:

## HAZARDOUS WASTE PROFILE SHEET

## PART I

## A. GENERAL INFORMATION

1. GENERATOR'S NAME

WASTE PROFILE NO.

2. FACILITY ADDRESS

3. GENERATOR USEPA ID

5. ZIP CODE

4. GENERATOR STATE ID

6. TECHNICAL CONTACT

7. TITLE

PHONE

## B. 1. NAME OF WASTE

2. USEPA/ or /STATE WASTE CODE(S)

3. PROCESS GENERATING WASTE

4. PROJECTED ANNUAL VOLUME/UNITS

5. MODE OF COLLECTION

6. IS THIS WASTE A DIOXIN LISTED WASTE AS DEFINED IN 40 CFR 261.31?  
(e.g., F020, F021, F022, F023, F026, F027, OR F028)☐ YES☐ NO

7. IS THIS WASTE RESTRICTED FROM LAND DISPOSAL? (40 CFR 268)

☐ YES☐ NO

HAS AN EXEMPTION BEEN GRANTED?

☐ YES☐ NO

DOES THE WASTE MEET APPLICABLE TREATMENT STANDARDS?

☐ YES☐ NO

REFERENCE STANDARDS

## PART II

## 1. MATERIAL CHARACTERIZATION (Optional - Not Required Data)

COLOR

DENSITY

BTU/LB

TOTAL SOLIDS

ASH CONTENT

LAYERING ☐ MULTILAYERED ☐ BILAYERED ☐ SINGLE PHASE

## 2. RCRA CHARACTERISTICS

## PHYSICAL STATE

☐ SOLID☐ LIQUID☐ SEMI-SOLID☐ GAS☐ OTHER☐ IGNITABLE (D001) TREATMENT GROUP: ☐ WASTEWATER

FLASH POINT

☐ NON-WASTEWATER☐ HIGH TOC (>10%)☐ REACTIVE (D003)☐ LOW TOC (<10%)☐ WATER REACTIVE☐ CORROSIVE (D002)☐ CYANIDE REACTIVE

ph

☐ SULFIDE REACTIVE☐ CORRODES STEEL☐ TOXICITY CHARACTERISTIC  
(SEE REVERSE FOR LISTING)

## 3. CHEMICAL COMPOSITION

COPPER

NICKEL

ZINC

CHROMIUM - HEX

PHENOLICS

TOTAL HALOGENS

VOLATILE ORGANICS

PCBs

(OTHER)

NOTE: EXPLOSIVES, SHOCK SENSITIVE, PYROPHORIC, RADIOACTIVE, AND  
ETIOLOGICAL WASTE ARE NOT NORMALLY ACCEPTED BY THE DRMO

## 6. GENERATOR CERTIFICATION

☐ CHEMICAL ANALYSIS (ATTACH TEST RESULTS)☐ USER KNOWLEDGE (ATTACH SUPPORTING DOCUMENTS)

Explain how and why these documents comply with RCRA requirements

## 4. MATERIAL COMPOSITION

COMPONENT

CONCENTRATION

RANGE

TOTAL 100%

## 5. SHIPPING INFORMATION

DOT HAZARDOUS MATERIAL? ☐ YES ☐ NO

PROPER SHIPPING NAME

HAZARD CLASS U.N or N.A. NO.

ADDITIONAL DESCRIPTION

METHOD OF SHIPMENT ☐ BULK ☐ DRUM ☐ OTHER

CERCLA REPORTABLE QTY ((RQ))

EMERGENCY RESPONSE GUIDE PAGE

DOT PUBLICATION 5800.4 PG NO. EDIT. (YR)

SPECIAL HANDLING INFORMATION

I, \_\_\_\_\_ HEREBY  
CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND  
ALL ATTACHED DOCUMENTS IS TO THE BEST OF MY  
KNOWLEDGE AN ACCURATE REPRESENTATION OF THE  
WASTE TURNED IN TO THE DRMO. ALL KNOWN OR  
SUSPECTED HAZARDS HAVE BEEN DISCLOSED.

Signature of Generator's Representative

Date



# TOXICITY CHARACTERISTIC LIST

CONTAMINANT	CAS NO.	EPA HW NO.	(mg/L)	CONTAMINANT	CAS NO.	EPA HW NO.	(mg/L)
<input type="checkbox"/> ARSENIC 7440-38-2		D004		<input type="checkbox"/> HEXACHLORO-BUTADIENE 87-68-3		D033	
<input type="checkbox"/> BARIUM 7440-39-3		D005		<input type="checkbox"/> HEXACHLOROETHANE 67-72-1		D034	
<input type="checkbox"/> BENZENE 71-43-2		D018		<input type="checkbox"/> LEAD 7439-92-1		D008	
<input type="checkbox"/> CADMIUM 7440-43-9		D006		<input type="checkbox"/> LINDANE 58-89-9		D013	
<input type="checkbox"/> CARBON TETRACHLORIDE 56-23-5		D019		<input type="checkbox"/> MERCURY 7439-97-6		D009	
<input type="checkbox"/> CHLORDANE 57-74-9		D020		<input type="checkbox"/> METHOXYCHLOR 72-43-5		D014	
<input type="checkbox"/> CHLOROBENZENE 108-90-7		D021		<input type="checkbox"/> METHYL EHTYL KETONE 78-43-3		D035	
<input type="checkbox"/> CHLOROFORM 67-66-3		D022		<input type="checkbox"/> NITROBENZENE 98-95-3		D036	
<input type="checkbox"/> CHROMIUM 7440-47-3		D007		<input type="checkbox"/> PENTACHLOROPHENOL 87-86-5		D037	
<input type="checkbox"/> O-CRESOL 95-48-7		D023		<input type="checkbox"/> PYRIDINE 110-86-1		D038	
<input type="checkbox"/> M-CRESOL 108-39-4		D024		<input type="checkbox"/> SELENIUM 7782-49-2		D010	
<input type="checkbox"/> P-CRESOL 106-44-5		D025		<input type="checkbox"/> SILVER 7740-22-4		D011	
<input type="checkbox"/> CRESOL --- --- ---		D026		<input type="checkbox"/> TETRACHLOROETHYLENE 127-18-4		D039	
<input type="checkbox"/> 2,4-D 94-75-7		D016		<input type="checkbox"/> TOXAPHENE 8001-35-2		D015	
<input type="checkbox"/> 1,4-DICHLOROBENZENE 106-46-7		D027		<input type="checkbox"/> TRICHLOROETHYLENE 79-01-6		D040	
<input type="checkbox"/> 1,2-DICHLOROETHANE 107-06-2		D028		<input type="checkbox"/> 2,4,5-TRICHLOROPHENOL 95-95-4		D041	
<input type="checkbox"/> 1,1-DICHLOROETHYLENE 75-35-4		D029		<input type="checkbox"/> 2,4,6-TRICHLOROPHENOL 88-06-2		D042	
<input type="checkbox"/> 2,4-DINITROTOLUENE 121-14-2		D030		<input type="checkbox"/> 2,4,5-TP (SILVEX) 93-72-1		D017	
<input type="checkbox"/> ENDRIN 72-20-8		D012		<input type="checkbox"/> VINYL CHLORIDE 75-01-4		D043	
<input type="checkbox"/> HEPTACHLOR (AND ITS HYDROXIDE) 76-44-8		D031					
<input type="checkbox"/> HEXACHLOROBENZENE 118-74-1		D032					

## PART III

### FOR DRMO USE ONLY

#### DRMO VERIFICATION

1. DATE VERIFIED \_\_\_\_\_

2. RESULTS ☐ ATTACHED

ph \_\_\_\_\_ FLASH POINT \_\_\_\_\_ SPECIFIC GRAVITY \_\_\_\_\_ HALIDES (TOX) \_\_\_\_\_

REACTIVITY: WATER REACTIVITY \_\_\_\_\_ CYANIDES \_\_\_\_\_ SULFIDES \_\_\_\_\_

TCLP

# INSTRUCTIONS FOR DRMS FORM 1930

## PART I

### A. GENERAL INFORMATION

1. GENERATOR NAME - Enter the name of the generating facility.
2. FACILITY ADDRESS - Enter the street address of the generating facility.
3. GENERATOR USEPA ID - Enter the 12 character alpha-numeric descriptor issued by the USEPA to the facility generating the waste.
4. GENERATOR STATE ID - Enter the descriptor issued by the state to the facility generating the waste. (if applicable)
5. ZIP CODE - Enter the generating facility's five or nine digit zip code.
6. TECHNICAL CONTACT - Enter technical contact's title.
7. TITLE - Enter technical contact's title.
8. PHONE - Enter technical contact's telephone number.

### B.

1. NAME OF WASTE - Enter a name that is generally descriptive of this waste (e.g., paint, sludge, PCB contaminated dirt, cyanide plating waste.)
2. USEPA/or STATE I.D. NO. - Indicate the appropriate state or USEPA Hazardous waste identification number (e.g. D001, U119 etc.)
3. PROCESS GENERATING WASTE - List the specific process/operation or source that generates the waste (e.g. paint spray booth, PCB spill, metal plating operation).
4. PROJECTED ANNUAL VOLUME/UNITS - Enter the amount of this waste which will be generated annually. Use the appropriate units to describe this volume (e.g. pounds).
5. MODE OF COLLECTION - Describe the method utilized to collect and store the waste stream (e.g., drums, tanks, ponds).
6. DIOXIN WASTE - Storage and disposal of Dioxin wastes requires special attention. If this waste is a USEPA listed Dioxin waste indicate "YES" and contact your DRMO representative.
7. LAND DISPOSAL RESTRICTIONS - Indicate if waste has been prohibited from land disposal, has received an exemption under 268.8 or meets

## PART II

### 1. MATERIAL CHARACTERIZATION (OPTIONAL - NOT REQUIRED DATA)

1. COLOR - Describe the color of the waste (e.g., blue, clear, varies).
2. DENSITY - Indicate the range. The specific gravity of water is 1.0. Most organics are less than 1.0. Chlorinated solvents, most inorganics and paint sludge are greater than 1.0.
3. BTU/LB - This entry is only required for property that may have potential for use as a fuel substitute.
4. ASH CONTENT - This entry only for used oil with recovery potential.
5. TOTAL SOLIDS - Content can be expressed as either a weight percentage or dry weight concentration (mg/kg).
6. LAYERING - Check all applicable boxes. Multi-layered means more than two layers (e.g., oil/water/solvent/sludge). Bi-layered means the waste

### 2. RCRA CHARACTERISTICS

1. PHYSICAL STATE - If the four boxes provided do not apply, a descriptive phrase may be entered after "Other".
2. IGNITABLE - Indicate if the waste is ignitable (D001) and list its liquid flash point obtained using the appropriate testing method (40 CFR 261.21). The flash point is important from a transportation standpoint (49 CFR 173.115). Also list if this waste is considered to be a HIGH TOC IGNITABLE (contains .GE. 10% total organic carbon) or a LOW TOC IGNITABLE (contains .LT. 10% TOC). Knowledge of high/low TOC is required due to Third Land Ban regulations. Solids with flammable potential should be identified in PART 3 (e.g., Pyrophoric, RCRA Reactive, other).
3. CORROSIVE - Indicate if the waste is corrosive (D002) and its pH for liquid or liquid portions of the waste. Also indicate if this waste corrodes steel (40 CFR 261.22). For solid or organic liquid wastes, indicate the pH of a 10% aqueous solution of the waste if applicable. Write "NA" for nonwater soluble materials (e.g., dismantled tanks, empty drums, gases).
4. REACTIVE - Indicate if the waste is reactive (D003) and if it is water reactive, cyanide reactive, or sulfide reactive (40 CFR 261.23).
5. TOXICITY CHARACTERISTIC - Check appropriate box and list contaminant level.

### 3. CHEMICAL COMPOSITION

Indicate if any of the listed chemical components (e.g., copper, nickel, phenols, PCBs etc.) are present in the waste and indicate the concentration level in ppm or mg/L.

OTHER - Indications of other hazardous characteristics must be included (e.g., explosives, radioactive, etiological, peroxide-forming etc.)

NOTE: Explosives, shock sensitive, pyrophoric, radioactive and etiological waste are normally not accepted by the DRMO for disposal.

### 4. MATERIAL COMPOSITION

Section 4 is necessary to determine if any listed wastes have been added to a characteristic waste in addition to the basic material makeup.

List all organic and/or inorganic components of the waste using specific chemical names. If trade names are used, attach MSDS or other documentation which adequately describe the composition of the waste. For each component, list its Chemical Abstract Service (CAS) No. (if applicable) and estimate the range (in percent) in which the component is present. In case of extreme pH (2 or less or 12.5 or greater) indicate specific acid or caustic species present. This list must include any hazardous components which exceed 10,000 ppm (1%). The total of the maximum values of the components must be greater than or equal to 100% including water, earth, etc.

## 5. SHIPPING INFORMATION

The presented information is not meant to constitute a standard USDOT certificate given by a shipper offering a package to a transporter. If the information contained in this section is also given on a manifest at time of turn-in, a copy of that manifest will suffice.

1. Indicate if this waste is regulated by U.S. Department of Transportation (DOT) (49 CFR 172.101).
2. PROPER SHIPPING NAME - Enter the proper USDOT shipping name for this waste ((49 CFR 172.101).
3. HAZARD CLASS - Enter the proper USDOT hazard class (49 CFR 172.101).
4. I.D. # - Enter the proper USDOT Identification Number (49 CFR 172.101).
5. ADDITIONAL DESCRIPTION - Enter any additional shipping information required (e.g., "RQ", the names of Hazardous Substance Constituents as they would appear on the Uniform Hazardous Waste Manifest and the packaging) (49 CFR 172.203).
6. CERCLA/DOT REPORTABLE QUANTITY (RQ) - Enter the Reportable Quantity for this waste from 49 CFR 172.101 or 40 CFR 302.
7. EMERGENCY RESPONSE GUIDE PAGE - Indicate the appropriate guide page found in DOT Publication 5800.4 as required by 49 CFR 172.602.
8. SPECIAL HANDLING INFORMATION - Describe those hazards which you know or reasonably believe are or may be associated with short term or prolonged human exposure to this waste (29 CFR 1910.1200 ). If known, please identify any carcinogens present in this waste in excess of 0.1% (29 CFR 1910.1200(d)(4). Attach relevant documents as a part of your response if appropriate. If documents are attached, identify those attachments. If you have a current Material Safety Data Sheet, it may be attached. Failure to make an entry in PART 5 is considered to be a representation that you neither know nor believe that there are any adverse human health effects associated with exposure to this waste. Also include in any additional information that will aid in the management of the waste.

## 6. GENERATOR CERTIFICATION

**"CHEMICAL ANALYSIS" OR "USER KNOWLEDGE" OR A COMBINATION OF BOTH IS MANDATORY AND SHOULD BE ATTACHED TO THE HAZARDOUS WASTE PROFILE SHEET. THIS IS USED AS SUPPORTING DOCUMENTATION TO THE WASTE PROFILE SHEET.**

An authorized employee of the generator must sign and date this certification on the completed generator's Hazardous Waste Profile Sheet.

CHEMICAL ANALYSIS - Attach copies of analysis.

USER KNOWLEDGE - User knowledge is appropriate when it can be documented (e.g., in & out logs, published info, msds, process production info). There is room provided to explain "what and "why" user knowledge is used in lieu of analysis. Attach all supporting documentation.

## PART III DRMO VERIFICATION

This section will be filled in by the appropriate DRMO personnel.

1. DATE VERIFIED - Enter date of last verification testing done on waste stream.
2. RESULTS - Enter results of verification testing or attach test results. If attached, please indicate so.